

ESL Algebra 2 Mr. Henao Dec 8, 2014

Name _____ ID: 1

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Solving Quadratic Equations Using Different Methods

Period _____

Solve each equation by taking square roots.

1) $10a^2 - 10 = 630$

2) $3k^2 + 4 = 130$

3) $6x^2 + 1 = 121$

4) $-10 - 3a^2 = -310$

Solve each equation by factoring.

5) $x^2 - 8x + 15 = 0$

6) $x^2 - 8x + 7 = 0$

7) $p^2 + 12p + 32 = 0$

8) $x^2 + 2x = 0$

Solve each equation with the quadratic formula.

9) $6a^2 + 8a - 25 = -3$

10) $8b^2 + 11b - 11 = 6$

11) $4n^2 - 9n - 18 = 6$

12) $10n^2 - 11n - 15 = -8$

Solve each equation by completing the square.

13) $v^2 - 12v + 21 = 10$

14) $a^2 + 16a + 6 = 7$

15) $n^2 + 18n + 21 = 4$

16) $x^2 + 12x + 2 = -10$

$$14) a^2 + 16a + 6 = 7$$

$$\begin{array}{r} -6 -6 \\ \hline \end{array}$$

$$a^2 + 16a + \boxed{64} = 1 + \boxed{64}$$

$$\frac{16}{2} = 8$$

$$8^2 = 64$$

$$(a + 8)^2 = 65$$

$$\begin{array}{r} a + 8 = \pm \sqrt{65} \\ -8 \quad -8 \\ \hline \end{array}$$

$$a = -8 \pm \sqrt{65}$$

$$\begin{array}{r} 10) \ 8b^2 + 11b - 11 = 6 \\ \underline{-6 \quad -6} \\ 8b^2 + 11b - 17 \end{array}$$

$$b = \frac{-11 \pm \sqrt{(11)^2 - 4(8)(-17)}}{2(8)}$$

$$= \frac{-11 \pm \sqrt{665}}{16}$$

$$6) \quad 6p^2 + 5 = 17p$$
$$6p^2 - 17p + 5 = 0$$


$\begin{matrix} a & b & c \end{matrix}$

$$p = \frac{-(-17) \pm \sqrt{(-17)^2 - 4(6)(5)}}{2(6)}$$

$$p = \frac{17 \pm \sqrt{169}}{12}$$

$$\frac{17+13}{12} = \frac{30}{12} = \frac{5}{2}$$

$$\frac{17-13}{12} = \frac{4}{12} = \frac{1}{3}$$

$$p = \frac{17 \pm 13}{12}$$


$$7) \quad y^2 - 2y = 4$$
$$y^2 - 2y - 4 = 0$$

$$\sqrt{20}$$
$$\swarrow \searrow$$
$$\sqrt{4} \quad \sqrt{5}$$
$$2\sqrt{5}$$

$$y = \frac{2 \pm \sqrt{(-2)^2 - 4(1)(-4)}}{2(1)}$$

$$y = \frac{2 \pm \sqrt{20}}{2} = \frac{2 \pm 2\sqrt{5}}{2}$$

$$\frac{2 \pm 2\sqrt{5}}{2}$$

$$\boxed{1 \pm \sqrt{5}}$$

$$8) \quad 2r^2 + 6r = 3$$

$$2r^2 + 6r - 3 = 0$$

a b c

$$X = \frac{-6 \pm 2\sqrt{15}}{4}$$

$$X = \frac{-3 \pm \sqrt{15}}{2}$$

$$X = \frac{-6 \pm \sqrt{(6)^2 - 4(2)(-3)}}{2(2)}$$

$$X = \frac{-6 \pm \sqrt{60}}{4}$$

$$X = \frac{-6 \pm 2\sqrt{15}}{4}$$

$$9) \quad 3q = 2q^2 - 7$$

$$2q^2 - 3q - 7 = 0$$

$$q = \frac{-(-3) \pm \sqrt{(-3)^2 - 4(2)(-7)}}{2(2)}$$

ROUND


$$\frac{3 + \sqrt{(-3)^2 - 4(2)(-7)}}{2(2)}$$

$$(2.77)$$

$$\frac{3 - \sqrt{(-3)^2 - 4(2)(-7)}}{2(2)}$$

$$(-1.27)$$

Answers to Solving Quadratic Equations Using Different Methods (ID: 1)

- | | | | |
|------------------------|--------------------------|------------------------|---------------------------|
| 1) $\{8, -8\}$ | 2) $\{6.481, -6.481\}$ | 3) $\{4.472, -4.472\}$ | 4) $\{10, -10\}$ |
| 5) $\{5, 3\}$ | 6) $\{7, 1\}$ | 7) $\{-8, -4\}$ | 8) $\{-2, 0\}$ |
| 9) $\{1.361, -2.694\}$ | 10) $\{0.924, -2.299\}$ | 11) $\{3.82, -1.57\}$ | 12) $\{1.551, -0.451\}$ |
| 13) $\{11, 1\}$ | 14) $\{0.062, -16.062\}$ | 15) $\{-1, -17\}$ | 16) $\{-1.101, -10.899\}$ |